

2-65 REV 12-76



E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
WILMINGTON, DELAWARE 19898

POLYMER PRODUCTS DEPARTMENT
EXPERIMENTAL STATION

PERSONAL AND CONFIDENTIAL

cc: A. J. Dahl - 353
L. J. Papa - 269
Pral File
I.C.

AR226-1586

July 16, 1981

DR. B. W. KARRH
MEDICAL DIRECTOR
WILMINGTON

ANALYSIS OF BLOOD SAMPLES FOR PERFLUOROOCTANOATE
(Job No. 810-578; PRAL Nos. 81-1555-1557, 81-1614-1619, 81-1662-1671,
81-1713-1721, 81-1816-1818, 81-1848, 81-1862-1865; Notebook Nos. E22514, E26238)

As requested in your letters of 4/20 through 4/30/81 to L. J. Papa, the
36 blood samples submitted then have been analyzed for perfluorooctanoate (C₈).
Results and sample identification are given in the attached table.

As noted there, the analyses were done using a gas chromatographic
method specific for C₈ (Lab Method Number ES-567) but results have been reported
as ppm F for comparison with total organic fluorine analyses. Precision is $\pm 10\%$
relative standard deviation over most of the concentration range, somewhat less
at the lowest values. The lower limit for quantitation is 0.007 ppm F (0.01 ppm
perfluorooctanoic acid), with a detection limit of ~ 0.004 ppm which can be
distinguished from the reagent background but not well quantitated.

Please contact me (772-4440) or L. J. Papa (772-2745) if you have any
questions regarding the analyses.

S. S. Stafford
S. S. Stafford

Attachment
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Key Words:
Perfluorooctanoic Acid
Perfluorooctanoate
Blood Analysis
GC

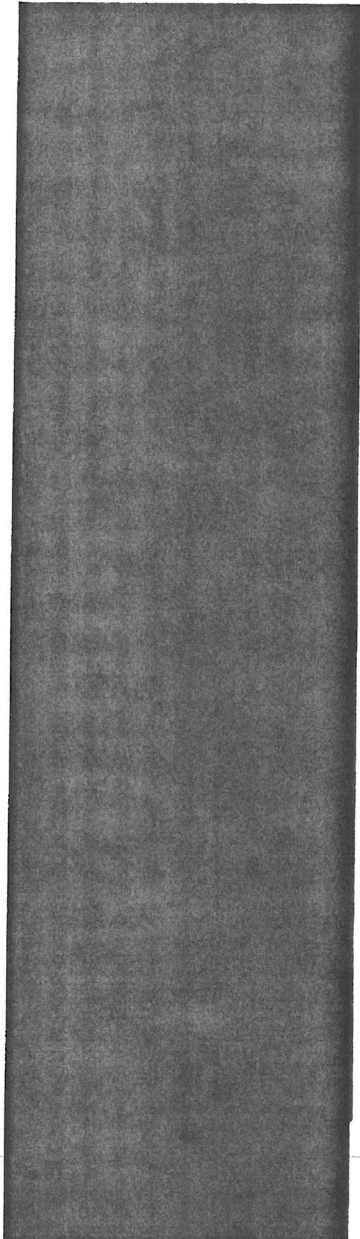
There's a world of things we're doing something about

EXP000030
EID713844

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TABLE I

CONCENTRATION OF PERFLUOROOCTANOATE IN BLOOD (a)

Sample				GC Analysis (b)	
PRAL No.	Date Sampled	P.R.No.	Name	Date Analyzed	[C8], ug F/g blood
81-1555	4/20/81	-		4/22/81	n.d.
81-1556	4/20/81	-		4/22/81	n.d.
81-1557	4/20/81	-		4/22/81	n.d.
81-1614	4/21/81	-		4/23/81	n.d.
81-1615	4/21/81	-		4/23/81	n.d.
81-1616	4/21/81	-		4/23/81	n.d.
81-1617	4/21/81	-		4/24/81	n.d.
81-1618	4/21/81	-		4/24/81	n.d.
81-1619	4/21/81	-		4/24/81	n.d.
81-1662	4/22/81	-		4/27/81	n.d.
81-1663	4/22/81	-		4/27/81	n.d.
81-1664	4/22/81	-		4/27/81	n.d.
81-1665	4/22/81	-		4/27/81	n.d.
81-1666	4/22/81	-		4/28/81	n.d.
81-1667	4/22/81	-		4/28/81	n.d.
81-1668	4/22/81	-		4/28/81	n.d.
81-1669	4/22/81	-		4/28/81	n.d.
81-1670	4/22/81	-		4/29/81	n.d.
81-1671	4/22/81	-		4/29/81	n.d.
81-1713	4/23/81	-		4/29/81	n.d.
81-1714	4/23/81	-		4/29/81	n.d.
81-1715	4/23/81	-		4/30/81	n.d.
81-1716	4/23/81	-		4/30/81	n.d.
81-1717	4/23/81	-		4/30/81	n.d.
81-1718	4/23/81	-		4/30/81	n.d.
81-1719	4/23/81	-		5/1 & 5/5/81	n.d.
81-1720	4/23/81	-		5/11/81	n.d.
81-1721	4/23/81	-		5/11/81	n.d.
81-1816	4/27/81	-		5/2/81	n.d.
81-1817	4/28/81	-		5/4/81	n.d.
81-1818	4/28/81	-		5/4/81	n.d.

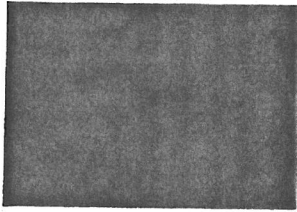
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TABLE I

CONCENTRATION OF PERFLUOROOCTANOATE IN BLOOD (a)

<u>Sample</u>				<u>GC Analysis</u>		(b)
<u>PRAL No.</u>	<u>Date Sampled</u>	<u>P.R.No.</u>	<u>Name</u>	<u>Date Analyzed</u>	<u>[C₈], μg F/g blood</u>	
81-1848	4/29/81	-		5/4/81	n.d.	
81-1862	4/30/81	-		5/4-5/5/81	n.d.	
81-1863	4/30/81	-		5/4/81	n.d.	
81-1864	4/30/81	-		5/5/81	n.d.	
81-1865	4/30/81	-		5/5/81	n.d.	

- (a) Analysis as described in Lab Method ES-567 ("Determination of Perfluorooctanoic Acid in Blood, Gas Chromatographic Method", S. Stafford, 4/3/81), using the packed column GC analysis with perfluoro-n-octanoic acid as calibration standard.
- (b) Although the analysis is specifically for perfluorooctanoate (acid or salts), concentrations are given in ppm fluorine for comparison with the results of total organic fluorine analyses. (ppm F = 0.688 x ppm perfluorooctanoic acid) Estimated uncertainty is $\pm 10\%$ relative standard deviation. The lower limit for quantitation is 0.007 μ gF/g. The detection limit is ~ 0.004 μ gF/g, but concentrations in that range cannot be well quantitated and are reported as < 0.007. None detected (n.d.) is reported for samples with [C₈] $\lesssim 0.004$ ppm, which cannot be distinguished from reagent background.

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EXP000032
EID713846

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